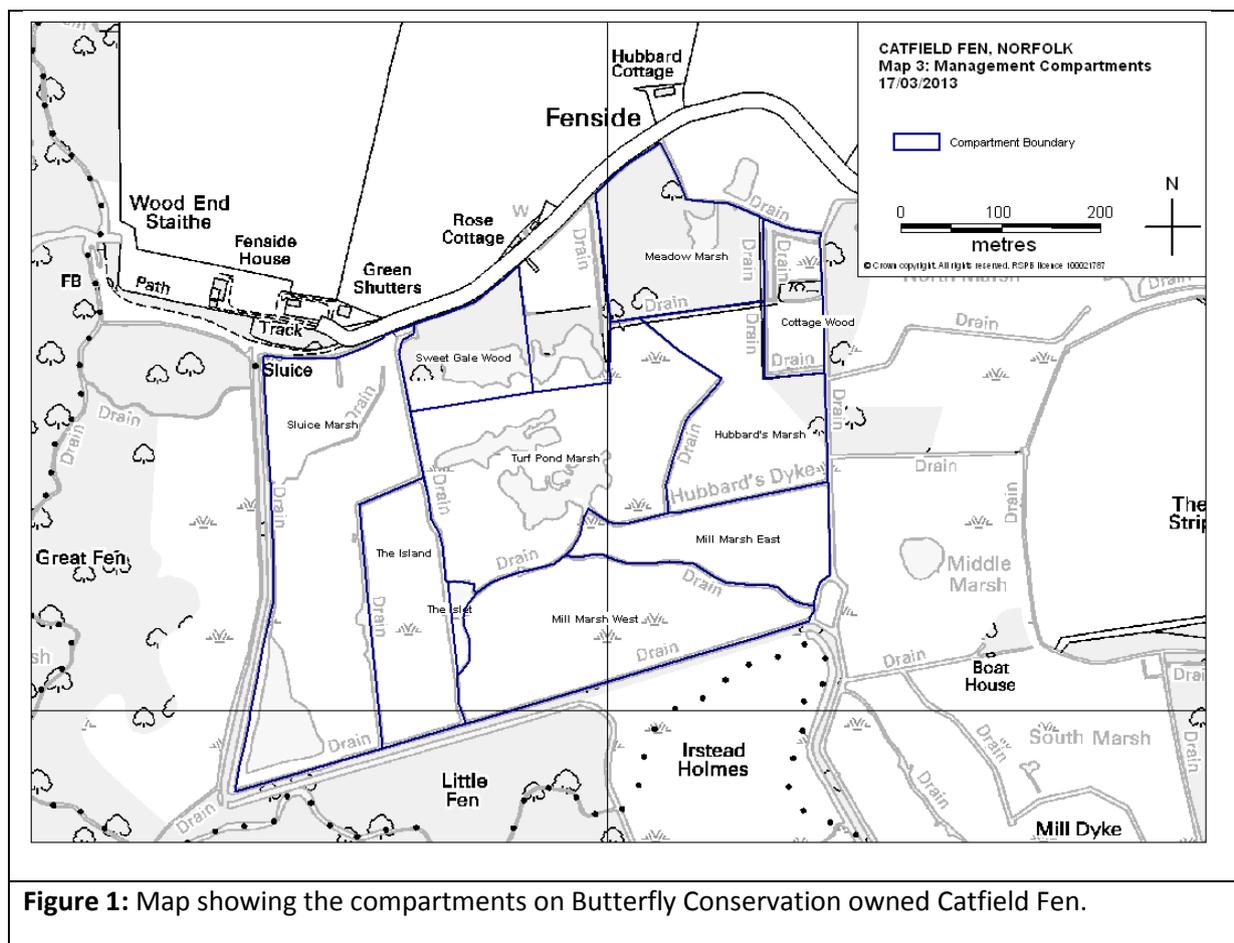


Appendix 8

Detailed accounts of habitat management on SSSI Unit 3, Catfield Fen

1. The following presents the best available information regarding historic management of SSSI Unit 3. Present management is documented for comparison. The SSSI Unit is divided into a number of different compartments. These are presented in Figure 1.



Habitat management of SSSI Unit 3 pre-1992

2. The RSPB has not been able to access detailed records of management of SSSI Unit 3 prior to ownership by Butterfly Conservation. However, available information indicates that the site was managed through a combination of commercial sedge, commercial reed, conservation cutting management and scrub management and non-intervention with some small areas of marsh hay / fen litter cutting. The primary objective was maintenance of wildlife value and for that reason the site was entered into a management agreement with the Nature Conservancy Council from 1973 (Keith McDougall *Pers. Comm.*). Beyond the commercial beds, much of the open fen was undergoing scrub encroachment before 1992 as highlighted in The Fen Resource Survey:

“herbaceous vegetation dominated by reed, sedge and pinreed, covers most of the site, large areas are extensively birch, alder and willow.”^{1,2}

Habitat Management of SSSI Unit 3 in 1992

3. Butterfly Conservation purchased SSSI Unit 3 in 1992. The available records indicate that no habitat management was coordinated by BC in this year, though commercial sedge cutting continued (Andy Hewitt *Pers. Comm.*). Work in this year focussed on assessing the site and identifying management requirements from 1993 onwards.

Habitat management of SSSI Unit 3 between 1993 and 1997

4. The first management plan sought to maintain the commercially cut areas whilst embarking on a programme of restoration of areas described as ‘recoverable scrub’. The plan detailed a five-year work programme to achieve the ‘ideal state’. Defined in the 1993 ‘Agreed Management Policy’ with English Nature as:

“The land should be managed to maintain and enhance its conservation interest especially of those species whose existence are threatened within the Norfolk Broads. The dykes should be managed in the best interest of the aquatic flora and fauna. Areas of fen which have been cleared of invading scrub should be managed so that they remain open. Rotational cutting of sedge and reed should continue where it is viable.”

5. The majority of work during this period was carried out by the reed and sedge cutter who was employed as a contractor to carry out additional habitat management, largely bank mowing and scrub removal by hand. This was supplemented by volunteer work parties.
6. The following projects were completed during this period:
 - Restoration of Island Marsh by removing scrub using tracked excavator and digging adjacent ditches to build bank around north, west and east sides of Island Marsh;
 - Continuation of commercial sedge mowing in Sluice Marsh;
 - Patchy commercial sedge mowing in Turf Pond Marsh;
 - Restoration of commercial reed to Mill Marsh West (where cutting had been abandoned in recent years, but is understood to have occurred historically) was made by carrying out restoration cuts;
 - Patchy scrub control on Hubbard’s Marsh;
 - Regular mowing of banks and paths for access; and
 - Following advice about the importance of wet areas for invertebrates and bitterns, the ‘new turf pond’ was dug in the south-west corner of Sluice Marsh. This involved lowering of approx. 0.5ha of peat and creation of banks to the south and west.
7. Over the four year period 1993 – 1997 this resulted in 1.8ha being cleared of scrub to restore open fen, approximately 3ha of commercial sedge cutting, the excavation of 0.6km of ditch and the restoration of 1.2ha of commercial reed through a non commercial cut. All of this work was carried out in agreement with English Nature. At the end of this management plan period, no

¹ Parmeter, J. Broadland Fen Resource Survey.

² Giller, K.E., & Wheeler, B.J. (1982). *Species richness of herbaceous fen vegetation in Broadland, Norfolk, in relationship to the above-ground plant material*. *Journal of Ecology* **70**: 179-200.

concerns were raised by English Nature about site condition and the site remained in Favourable condition.

Habitat management of SSSI Unit 3 between 1997 and 2003

8. By 1997, although scrub clearance had been carried out as described above and there had been no reduction in the areas of cut sedge and an increase in the area of cut reed, there was still considered to be an excess cover of scrub. The 1997 site management statement described the long term management of the site to achieve the overall objective of maintenance of habitat diversity;
 - Commercial sedge – summer cutting (July to September) and removal of crop on 3 to 4 year rotation
 - Commercial reed – winter cutting (mid Dec to mid March) and removal of crop on 2 year – rotation
 - Unmanaged reedbed – scrub removal as necessary to maintain open habitat. Removal of brushwood from site if possible. If not, keep the number of bonfires to a minimum to avoid enrichment
 - Mixed Fen – summer cutting (June to September) and removal of crop on a minimum 4 year rotation. Need for cut to be partly determined by extent of scrub developments
 - Mixed fen for biofuel – summer cutting on a 4 to 10 year rotation.
 - Marsh hay – annual summer cut at 10cms above ground level and removal of crop
 - Mature woodland – non intervention
 - Coppiced woodland – coppicing on a 10 to 15 year rotation
 - Acidophilic vegetation – occasional clearance of birch by hand to prevent over shading of *Dryopteris*
 - Birch copse – hand removal of birch saplings to maintain copse at present size
 - Turf pond and open water – non-intervention
9. The following projects were completed during this period:
 - Continuation of commercial sedge mowing in Sluice Marsh;
 - A trial restoration cut of the southern part of Sluice Marsh was undertaken, but this proved unsuccessful with the resulting vegetation too rich in grass (probably purple small reed) and not of commercial quality. The area was considered to be too dry. (Andy Hewitt, Pers. Comm.);
 - A trial restoration cut of Island Marsh (an area not cut under previous ownership), but this proved to have limited success. The new banks constructed during the previous period are considered to have led to excessive water levels and stagnation during summer months and poor sedge growth. Sedge continued to be harvested here, but on a very long rotation (Andy Hewitt, Pers. Comm.);
 - Continuation of patchy commercial sedge mowing in Turf Pond Marsh;
 - Continuation of commercial reed in Mill Marsh West on an annual wale following successful restoration cuts.
10. Over the six year period 1997 – 2003, 3.32ha of scrub was cleared, 6.45ha of commercial sedge was cut, 0.4km of ditch was managed and 8ha of commercial reed was cut on a single wale. All

of this work was carried out in agreement with English Nature. At the end of this management plan period, no concerns were raised by English Nature about site condition and the site remained in Favourable condition.

Habitat management of SSSI Unit 3 between 2003 and 2008

11. By 2003, scrub had continued to invade the site. This was despite continuation of the historic commercial reed and sedge cutting and increased effort to retard scrub succession and maintain access banks. It had become clear that Catfield Fen tended to scrub up very rapidly, possibly due to historically high levels of scrub (and high seed burden) and due to relative dryness of parts of the site compared with other fen sites in the Broad (such as Sutton Fen).
12. A new, more detailed management plan was written in accordance with the NNR plan requirements determined by English Nature. This Management Plan included more detail on site geology, hydrology, flora and fauna as well as management objectives and a detailed work plan.
13. Following the management review, the following actions were undertaken during the period 2003 to 2008 (as documented in the 2008 – 2013 management plan):
 - Commercial sedge harvesting continued on Sluice Marsh and the Island.
 - Reed harvesting continued annually on Mill Marsh West, the bed now commercially productive and within an annual rotation.
 - Commencement of a rolling program of ditch edge management took place by removing overhanging scrub and trees, the aim to ensure 25% of dyke edges should have been recently cleared.
 - Scrub removal on the edges of the new turf pond in Sluice Marsh to retain open conditions.
 - Patchy scrub clearance in Mill Marsh West, Sluice Marsh and the Island.
 - Two small ponds were dug by hand on Hubbard's Marsh as a Plantlife experiment to monitor reproduction of Crested Buckler Fern.
14. Over the six year period 2003 - 2008, 1.3ha of scrub was cleared, 5.5ha of commercial sedge was cut 0.5km of ditch was managed and 3ha of commercial reed was cut. Due to poor reed crops, 4ha of reed was cut without taking a harvest in an attempt to restore commercial quality. All of this work was carried out in agreement with English Nature. At the end of this management plan period, no concerns were raised by English Nature about site condition and the site remained in Favourable condition.
15. During this plan period, invertebrate surveys were conducted in 2003 and 2004. These revealed the national importance of the site for water beetles, many of which were associated with 'scrubby fen'; any management now had to recognise the needs of the invertebrate interest of the site.

Habitat management of SSSI Unit 3 between 2008 and 2013

16. By 2008, there had been a continuation of the historic commercial reed and sedge cutting and continued effort to maintain scrub levels, which now stood at approx 15% of the open fen area (Catfield Fen Management plan 2008 – 2013). The importance of the small scrub was now known to be a key feature for maintenance of invertebrate communities. However, efforts to prevent further succession of scrub continued. Scrub encroachment continued to occur rapidly, particularly on drier parts of the site. In 2010, Natural England changed their assessment of the condition of the site to unfavourable declining due to inappropriate scrub control. A need to reduce scrub cover further, to 10% cover was agreed and the control was facilitated through a series of ESA and then HLS Capital payments and increased levels of volunteer involvement. In 2011, the commercial reedbed in Mill Marsh West became unsuitable for reed production. This was considered to be due to drying and acidification despite regular management (see section 4 for a description of the successional processes happening at Catfield Fen). To ensure continuity of management for the plant community in this area, the reedbed cutting continued on a non-commercial, short rotation winter cut as agreed with Natural England and Plantlife (the latter involved due to the discovery of *Liparis loeselii* in this area). In 2011, in response to concern about drying of the site, a new pond was dug in Mill Marsh West by removing alder scrub and digging with an excavator.
17. As documented in the 2013 to 2018 management plan, the following projects were completed:
- Continuation of commercial sedge cutting;
 - Continuation of commercial reed cutting until 2011 followed by non-commercial fen cutting;
 - Restoration of over 1ha of Mill Marsh West from scrub to open fen;
 - Scrub clearance of 1.4ha from Hubbard's Marsh and Turf Pond Marsh;
 - Annual cutting of 0.3ha in Hubbard's Marsh to increase flowering plant diversity;
 - Continuation of hand dyke clearance and bank cutting.
18. Over the five year period 2008-2013, 4.2ha of scrub was cleared, 3.0ha of commercial sedge was cut, 0.9km of ditch was managed, 3.65Ha of commercial reed was cut and 1.63Ha of non commercial fen was cut. All of this work was carried out in agreement with Natural England and regular communication with the site SSSI and ESA / HLS advisors. During this period, no concerns were raised about site management by Natural England except for highlighting an unacceptably high level of scrub on the site that was the reason for the site condition changing to Unfavourable declining despite continued efforts to control scrub since 1992. Since this change, additional funding has enabled further work to tackle the scrub encroachment.

Habitat management of SSSI Unit 3 in 2013 and 2014.

19. By 2013, there had been a continuation of the historic commercial sedge cutting and significant progress in returning the site to acceptable scrub levels. The latest management plan highlights the importance of maintenance of some scrub areas for invertebrate communities and an appropriate level was agreed with NE and RSPB Reserves Ecologists, this required a further 2.4Ha of scrub removal. Past hand clearance of dykes had helped keep them open, and allowed continued flow of water, but this was not adequate to ensure boat access around the site for both the commercial sedge cutter and other management activities. Therefore the new HLS agreement provided funding for further scrub removal and ditch restoration work.

20. To date, the following work has been completed under the 2013 – 2018 management plan:
- Continuation of commercial sedge cutting;
 - Continuation of 1.5ha non commercial reed cutting of Mill Marsh West;
 - Continuation of 0.3ha annual cut on Hubbard’s Marsh;
 - Commencement of patchy non-commercial fen cutting to south of Sluice Marsh, Island Marsh, on Meadow marsh and on Mill Marsh West;
 - Removal of 2.4ha of scrub across the site and further patchy roguing;
 - Restoration of 1.3km of dykes through excavation.
21. All of this work was carried out in agreement with Natural England. To date, no concerns have been raised by Natural England about site management though the site remains in Unfavourable declining condition due to; Inappropriate scrub control (time will be required for fen habitats to recover following removal), freshwater – water abstraction and other (loss of habitat suitable for fen orchid).

Present and recent habitat management at Sutton Fen

22. At present, following the completion of scrub removal works in 2014, the levels of scrub communities, commercial sedge cutting, non-commercial conservation cutting and maintenance of open fen is as required through the site HLS agreement and as described in the current site management plan.
23. Sutton Fen (SSSI Units 8, 10 and 24) has been managed as an RSPB reserve since 2007. Prior to this, it was privately owned with varying degrees of conservation and commercial management carried out through the 20th Century. Although no thorough comparison between Sutton Fen and Catfield Fen of site management histories is carried out here, from our knowledge as managers of both sites, we are aware that the management histories have been broadly similar (periods of intensive commercial management, periods of relative neglect leading to scrub encroachment, periods of significant scrub clearance and more recently, management typical of a Broadland fen nature reserve with a variety of both commercial and non commercial management techniques; including reed and sedge cutting, dyke maintenance, non commercial fen cutting, scrub management and small scale turf ponding).
24. Sutton Fen demonstrates a variety of successional stages of historically turf ponded fen, with both recent (19th and 20th century) and medieval (13th and 14th century) areas of peat digging. Like Catfield Fen, the formerly turf ponded areas (the majority of the site) are undergoing successional processes. Unlike Catfield Fen, this has not led to a deterioration of the nature conservation interests. Indeed, Sutton Fen is often cited as an exemplar within the Broads and nationally as a fen site that is delivering well against its nature conservation objectives – including increases in Fen Orchid, consistently high swallowtail and Norfolk hawker counts, increases in 7 key RDB fen plant species, colonisation of new ponds by Shining Ramshorn snail and a return of cranes as a breeding species.
25. These successes have largely been achieved through sensitive and targeted conservation management in consultation with Natural England and underpinned by management plans. The methods have been broadly similar to conservation efforts at Catfield Fen. The RSPB wrote the latest Catfield Fen management plan underpinned by the same knowledge and experience that

informed the Sutton Fen management plan. The sites are similar in terms of the percentage of open fen managed, with 40% of the Open Fen at Catfield in regular rotational management and 36.5% of Sutton in regular rotational management. The level of recent turf ponding has been higher at Catfield Fen than Sutton Fen (3.8% and 1.0%).

26. Sutton Fen and Catfield Fen are managed in broadly the same way, though with some site and species specific tailoring. If management was the driver behind the changes occurring at Catfield Fen, then those changes would be expected to be occurring at Sutton Fen and at other sites in the Broads under a similar management regime and with similar historic management.
27. Though the RSPB does have significant concern about potential impact of water abstraction on Sutton Fen the SSSI features are currently in favourable condition and this demonstrates the efficacy of current and recent habitat management techniques.